

April 17, 2008

Mr. William Turner, Conservation/Resource Planner  
Westford Town Hall  
55 Main St.  
Westford, MA 01886

Re: **Westford Nonzoning Wetlands Bylaw**

Dear Mr. Turner:

MACC has reviewed two documents provided by Jerome B. Carr, Ph. D. entitled, "Increase in Jurisdiction in the Westford Non-Zoning Bylaw," dated 9 April 2008 and "Review of Westford's Non-Zoning Wetland Bylaw," dated 4 April 2008

MACC can find no valid argument in the materials presented. The bylaw is designed to protect important local resources such as water supply, fisheries, and wildlife, and to prevent flooding. It allows flexibility for the conservation commission to review and allow minor homeowner projects such as gardens or swing sets where the existing yard is within close proximity to wetlands, without onerous requirements such as engineered plans or costly fees. At the same time, it provides for careful review of all projects, including significant land clearing or development activities that have a high probability of degrading the community's water resources if not properly designed and maintained. It provides the commission with the necessary discretion and information necessary to properly review and condition projects consistent with the degree to which they are likely to impact functions and values that are important to the community's health, safety, welfare, and quality of life. The bylaw allows sufficient flexibility to permit a wide range of projects including so-called "limited projects." The bylaw and regulations are consistent with a vast body of technical literature on the science of wetlands and buffer zones, while Dr. Carr's claims are not consistent with mainstream wetland science and hydrology.

#### **Purpose of local Bylaws and Ordinances**

As of this writing, 194 Massachusetts communities have local wetlands protection by-laws (Towns) or ordinances (Cities). It is most interesting to note that every community surrounding Westford has a by-law. For a map showing the communities which have by-laws or ordinances, you can go on line to [http://maccweb.org/resources\\_bylaw\\_map.html](http://maccweb.org/resources_bylaw_map.html).

Local wetlands protection by-laws have been with us since the 1960's, following the adoption of the Home Rule Amendment to the Massachusetts Constitution. They have been upheld in numerous Court decisions, as a valid exercise of this power. Courts have held that the State Wetlands Protection Act sets a minimum standard of wetlands protection, and that communities are well within their rights to enact by-laws or ordinances which go beyond the terms of the Act. In fact, Courts have held that by-laws which do not go beyond the provisions of the State Wetlands Protection Act are not valid exercises of local authority.

Westford's by-law is not unusual in terms of the resources it protects, and the standards it sets for applicants who seek to work within resource areas or buffer zones. In fact, many communities in Massachusetts have adopted by-laws or ordinances which are far more restrictive than the Westford By-Law.

MACC has developed a model by-law to guide communities which seek to adopt local by-laws or ordinances. This model has been approved by the Attorney General's office, so that communities which use this model may be assured that the by-law passes legal scrutiny by that office. This model by-law is more stringent in many areas than is Westford's. Clearly in adopting the by-law the people of Westford took into account local circumstances and concerns and tailored their by-law to meet their needs.

Further, should the citizens of Westford wish to amend their by-law, there is a settled procedure which would enable them to do so. Wholesale repeal of this by-law, as Dr. Carr and others seek to do, would result in the loss of valuable wetlands resources special and unique to the Town of Westford - resources which caused the need for the by-law in the first place.

### **Wetland Science and Buffer Zones**

In addition, the bylaw is based on well documented scientific knowledge developed over the course of decades of study of wetland science, function, values, and assessment of activities adjacent to wetlands. A search under "wetland buffer zones" on the internet yields tens of thousands of results, including papers, research results, symposium and conference data, and state regulatory programs.

In 1995, MACC dedicated its Annual Fall conference to Wetland Buffer Zone. The handout materials provide significant supporting documentation to the protection and regulation of Buffer Zones. Since that time, the science on buffer zones has further reinforced the basis for the buffer zones recommended in those materials. A review of the current science in the March/April 2008 issue of the Environmental Law Institute's National Wetlands Newsletter<sup>1</sup> once again confirms that a 50 to 100 foot wide, naturally vegetated buffer adjacent to wetlands is the minimum necessary to trap sediment and pollutants and maintain minimal wildlife habitat. Much wider buffers are necessary to maintain all functions, depending on site conditions and the proposed activity. This article concludes, "Local buffer ordinances serve a critical role in maintaining community life, management of stormwater and flooding, protection of water quality and quantity, habitat conservation, and resilience to the future effects of global climate change on local communities." Use of buffer zones as areas between incompatible land uses is a common regulatory approach to avoid and minimize environmental impacts, not only in wetland science, but in land planning.

### **Wetlands Science and Functionality**

In his 4 April 2008 document, Dr. Carr makes reference to the "auto-regulatory" capacity associated with Mires from a book published in 1983. Dr. Carr further states that the "broad term "mires"...includes most wetlands".

Review of more recent wetland science publications did not come up with the term "auto-regulatory" in the context of wetland ecosystems, but it is anticipated that the term refers to the potential capacity of some wetlands to insulate themselves from the immediate surrounding watershed. For example, there are several types of bogs that have the capacity to insulate themselves because the accumulation of peat and organic materials raises them higher than the surrounding watershed, for example, raised bogs. This would make sense in that the term "mire" is now typically associated with peat accumulating ecosystems,

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<sup>1</sup> *Setting Buffer Sizes for Wetlands*, by James M. McElfish, Jr, Rebecca L. Kihlslinger, and Sandra Nichols

such as bogs<sup>2</sup> Bogs are one category of wetland, and not the most common form on the Massachusetts landscape. Most wetlands, and even most bogs in Massachusetts, are located in low points relative to the surrounding land, and are affected by land uses in that surrounding landscape.

The debate that some wetlands have the potential to insulate themselves is part of the large debate on ecosystem succession, and more specifically, wetland ecosystem succession. For example, autogenic succession, which may be what “auto-regulatory” capacity refers to, is a theory of succession of ecosystems whereby vegetation occurs in recognizable and characteristic communities; community change through time is brought about by the biota; and changes are linear and directed toward a mature stable climax ecosystem. Mitsch & Gosselink, 4<sup>th</sup> Edition. There is well documented debate among scientists regarding successional theories.

However, regardless of whether certain types of wetland are, in fact, auto-regulatory, or go through autogenic succession, one must review in what capacity any wetland may be affected by activities in the buffer zone. There is very extensive scientific evidence that the important functions of wetlands (including their ability to filter water, absorb floodwaters, and provide habitat for fish and wildlife) can be seriously degraded by activities in the surrounding landscape that allow pollutants and sediments to enter the wetlands or otherwise alter the physical, hydrological, chemical and biological processes of the wetland. The state and the Town have established a purpose for regulating activities within wetlands and their buffer zones. The purpose is to protect certain values, some of which extend to the functional ecosystem associated with a wetland.

Even assuming that some wetlands have the capacity to insulate themselves to some degree (e.g. pH, dominant vegetation, water level variables), they are not insulated from such factors as changes in runoff, water quality, proximity of land use activities, affect on wildlife that rely on the proximity of wetland and upland, or other factors that are meant to be addressed by the protection of the values associated with the wetland bylaw.

### **Point by Point Analysis**

In his 9 April 2008 document, Dr. Carr lists those “items with the most impact or which make the least sense” in the local bylaw. These items are listed below along with responses.

*1 – The bylaw extends jurisdiction by adding a 100-foot buffer zone to the 100-year floodplain. This can be a large expansion in jurisdiction over land use changes that can mean nothing to the nearest wetland.*

The Federal Emergency Management (FEMA) floodplain maps are not precise at the local site level, and usually are outdated by changes in the local watershed. As development proceeds throughout a watershed, the amount of impervious surface increases causing stormwater to runoff more quickly. Furthermore, climate change models indicate that the intensity of storm events is likely to increase in the

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<sup>2</sup> The term “mire” is defined by *The American Heritage® Dictionary of the English Language, Fourth Edition*. Houghton Mifflin Company, 2004. 14 Apr. 2008. Dictionary.com <http://dictionary.reference.com/browse/mires>. as

1. An area of wet, soggy, muddy ground; a bog.
2. Deep slimy soil or mud.

Mire is defined in *Wetlands*, by Mitsch & Gosselink, 4<sup>th</sup> Edition, John Wiley & Sons, Inc., 2008, as “Synonymous with any peat-accumulating wetland.”

near future (indeed, the precipitation records for the last 20 years indicate that this change may already be taking place), therefore floodplains are expanding beyond the areas delineated on the FEMA maps.

Development or other activity within or adjacent to a floodplain can increase flooding on adjoining and downstream properties if not carefully planned and executed. While this is supposed to be mitigated by stormwater management on most new projects, projects located entirely in uplands are sometimes not subject to stormwater management requirements under the Wetlands Protection Act. Therefore many communities are adopting local wetlands and/or stormwater bylaws. Floodplain issues warrant a case-by-case review which is why the Town, in voting to approve the bylaw, chose to regulate activities within the buffer zone to floodplain. The bylaw provides ample flexibility for the conservation commission to allow projects that will not increase downstream flooding.

*2 – Dumping of any material, even if not soluble or harmful in any fashion, is prohibited.*

The bylaw only requires the commission to regulate significant or cumulative alterations, and defines “alter” to include “Dumping, discharging or filling with any material which may degrade water quality.” While the language in the bylaw could be clarified, it does provide the commission the ability to conduct a case-by-case review, and allow placement of materials that are not harmful.

*3 – Storage of many materials is prohibited.*

The prohibited materials are “Storage of salts, fertilizers, heavy metals, petrochemical products or toxic substances.” The procedural and standards of review portions of the bylaw and regulations provides the ability for an applicant to overcome a presumption that an activity will be harmful. As with the previous comment, while the bylaw language might be refined for improved clarity, there is no indication that this provision in practice has resulted in unreasonable regulation.

*4 – Fees are much higher, especially for review.*

The filing fee is only \$25 in addition to the state Wetlands Protection Act fees. The review fees are discretionary, and typical of many local bylaws and ordinances. Furthermore, all conservation commissions are now empowered with applying these same review fees under the Wetlands Protection Act, through MGL Ch. 44 S. 53g<sup>3</sup>, so repealing the bylaw would not eliminate the consultant fee provisions. Other local boards, such as the planning board, also have the same ability to require consulting fees under this same law. These third party reviews are necessary for some projects, particularly large projects or those with complex impacts. There is no evidence that the Westford conservation commission has abused this provision.

*5 – Notice of hearing is limited to certified mail, and hand delivery is not allowed.*

Certified mail ensures documentation of receipt.

*6 – All “banks” are jurisdictional.*

This is reviewed on a case-by-case basis, which is why it is reviewed and regulated.

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<sup>3</sup> <http://www.mass.gov/legis/laws/mgl/44-53g.htm>

*7 – The limited project exceptions to the Wetlands Protection Act are not allowed by right.*

They are also not allowed by right under the Wetlands Protection Act, which requires an alternatives analysis. See 310 CMR 10.53 (3) which states, in part, “In the exercise of this discretion, the issuing authority shall consider the magnitude of the alteration and the significance of the project site to the interests identified in M.G.L. c. 131, § 40, the availability of reasonable alternatives to the proposed activity, the extent to which adverse impacts are minimized, and the extent to which mitigation measures, including replication or restoration, are provided to contribute to the protection of the interests identified in M.G.L. c. 131, § 40.”

*8- Cumulative impacts are not allowed, even if insignificant. Insignificant impacts are allowed under the Mass. Regulations.*

This is not accurate. The bylaw states, “If the Commission, after a public hearing, determines that the activities which are the subject of the application are likely to have a significant or cumulative effect upon the wetland values protected by this chapter, the Commission, within twenty-one (21) days of the close of the hearing, shall issue or deny a permit for the activities requested. If it issues a permit, the Commission shall impose conditions which the Commission deems necessary or desirable to protect those values, and all activities shall be done in accordance with those conditions.” Thus, if a project has significant or cumulative impacts, it nevertheless can be permitted with conditions.

Impacts are reviewed as part of the permitting process. The Massachusetts regulations address cumulative impacts as they fall within certain performance standards, which must be met, or the project will not be approved.

*9- Moving of soils into or out of a resource area or buffer zone are considered potentially harmful by the Town bylaw.*

The same is true under the Massachusetts Wetlands Protection Act regulations. No activities may occur in the buffer zone or a resource area without a permit or a determination that a permit is not required. The state regulations define Activity as “any form of draining, dumping, dredging, damming, discharging, excavating, filling or grading; the erection, reconstruction or expansion of any buildings or structures; the driving of pilings; the construction or improvement of roads and other ways; the changing of run-off characteristics; the intercepting or diverging of ground or surface water; the installation of drainage, sewage and water systems; the discharging of pollutants; the destruction of plant life; and any other changing of the physical characteristics of land.” See 310 CMR 10.04.

*10- By banning changes to increase flood retention characteristics in wetlands means that activities that will reduce flooding may not be allowed.*

The bylaw does not ban changes to flood retention characteristics, it merely includes this in the definition of alterations requiring review. The same is true under the Massachusetts Wetlands Protection Act regulations. Changing the characteristics of a resource area requires a permit.

11- *Tree cutting is considered an alternation. Does this apply even to one tree?*

The same is true under the Massachusetts Wetlands Protection Act regulations. Changing the characteristics of a resource area requires a permit. Work within the buffer zone requires a review to determine whether a permit is required.

12- *The term “shellfish” is not limited. Thus even fingernail clams are protected.*

Fingernail clams are typically found in vernal pools. Certified vernal pools are a special wetland ecosystem protected under state law, and further, defined as an Outstanding Resource Water in the regulations implementing the Federal and State Clean Water Act (314 CMR 4.00).

13- *The increase in “volume” of runoff is prohibited, even if flooding is decreased.*

This is a frequent addition in local bylaws, because increasing runoff from a site decreases infiltration and the ability of a site to contribute to groundwater recharge and otherwise alters the local hydrology. In the current climate of low impact development and efforts throughout the state to address sustainability, the ability to maintain groundwater supplies and local hydrology are well documented.

In addition, changes in run-off characteristics and the intercepting or diverging of ground or surface water are regulated under the Massachusetts Wetlands Protection Act regulations as an activity. See response to point 9 above. While the state regulations do not specifically require that drainage calculations address or detain increases in runoff volume (the state regulates the rate of runoff), the net affect of volume increases or decreases to a wetland would be reviewed under the state regulations as an activity that requires permit review.

14- *Structures such as swing sets and trampolines are presumed harmful to wetlands.*

These are two of many examples provided in the bylaw to illustrate that work requiring review encompasses any activity that alters the natural condition of the area. Removing natural vegetation and replacing it with any artificial item alters the area in question. The bylaw provides the commission with ample flexibility to allow such work where the applicant can overcome the presumption that the work will in fact constitute a wetland alteration, or if the work can be conditioned to minimize impacts to an acceptable level. There is no evidence that the Westford Conservation Commission has unreasonably applied these provisions or overly restricted homeowner's use of their property.

15 – *If new gardens are deemed “artificial surfaces” included [in] Chapter 235 then people will need to get a permit for new vegetable gardens.*

See response to #14.

## **Conclusion**

In conclusion, our review of the Westford Nonzoning Wetlands Bylaw found that it is consistent with wetland science and local regulatory provisions applied in more than half the municipalities in the commonwealth. While there may be some minor portions of the language that may benefit from slight clarification, the overall thrust of the criticisms is without merit. Clarifications and changes to the regulations implementing the bylaw can be made at a public meeting of the Commission.

Wetlands are important to many public interests. MACC supports the work of the Westford Conservation Commission and the thousands of other volunteer conservation commissioners across the commonwealth who work to protect their communities water supplies, fisheries, wildlife, and quality of life for the benefit of all residents and future generations.

Sincerely,

Michael Sites  
Acting Executive Director

This letter was prepared with the assistance of the following individuals:

**Michael G. Sites** is an attorney with offices in Brockton, specializing in land use and permitting. He is the Past President, and currently Acting Executive Director, of the Massachusetts Association of Conservation Commissions (MACC). A 1975 graduate of Dartmouth College, and a 1978 graduate of the New England School of Law, he served from 1989-2005 on the Conservation Commission of the Town of Easton, and was its Chair from 1994-2005. Attorney Sites has lectured extensively on local wetlands protection by-laws and on wetlands protection issues generally, is co-author of a book published by MCLE used in conjunction with a professional development course for attorneys practicing before Conservation Commissions, and has lectured on wetlands protection by-laws for the Massachusetts City Solicitors and Town Counsel Association. As a member of the Easton Commission, he has been involved in numerous lawsuits defending the Easton Wetlands Protection By-Law, which has been successfully defended each time it has been challenged in Court. He resides in North Easton.

**Ms. Ingeborg Hegemann** has a B.A. in Geology from Skidmore College and a Master of Regional Planning from the University of Pennsylvania. She has additionally taken graduate courses in wetland-related studies, including wetland restoration and replication from William Mitsch, at the University of Ohio. She is trained by the U.S. Fish and Wildlife Service in Habitat Evaluation Procedures. She is a Vice President and Principal at BSC Group, and manages BSC's Ecological Sciences Group. Ms. Hegemann was a Board Member and President of the Massachusetts Association of Conservation Commission, and remains on the President's Council of MACC. She has over 25 years of consulting experience in environmental planning, wetlands assessment and impact analysis, and regulatory permitting.

Ms. Hegemann is experienced in institutional and policy analysis relative to Massachusetts statewide policy development and local regulations implementation. She has participated in several DEP technical advisory committees, including the Stormwater Advisory Committee, the committee determining intermittent versus perennial stream characteristics for application with the Rivers Protection Act, and others. She is an adjunct professor teaching Wetland Ecology at the University of Massachusetts/Lowell, is a member of the Society of Wetland Scientists (PWS #532), a Certified Wetland Scientist with the New Hampshire Association of Natural Resource Scientists (CWS # 158), a member of the Association of State Wetland Managers (Member 1953), a member of the Association of Massachusetts Wetland Scientists, and was recently asked to participate on the U.S. Army Corps of Engineers Delineation Manual Regional. Supplement Peer Review Team.

Ms. Hegemann is currently Chair of her Conservation Commission and has served on her Planning Board and Land Trust.

**Patrick C. Garner** is a Senior Wetland Scientist and Hydrologist who has been in private practice for 22-years. He is the Principal of Patrick C. Garner Company Inc. He is a former member of the MACC Board of Directors, and served as MACC President in 2004. Garner continues to work with MACC as a member of the President's Council. In addition, he is a past President of the Association of Massachusetts Wetland Scientists (AMWS), and a former member of the Harvard Conservation. He frequently teaches wetland science and hydrology seminars throughout New England.

**E. Heidi Ricci** holds a B.S. degree in Biology from Tufts University and an M.S. degree in Resource Management and Administration from Antioch University New England. She is a member of the Society of Wetland Scientists and the Association of Massachusetts Wetlands Scientists. Ms. Ricci is a Senior Policy Analyst at Mass Audubon, with over twenty years of experience in environmental policy, wetlands regulation and restoration, land use planning and regulation, and open space protection. She has served on numerous state advisory committees formed under the Executive Office of Energy and Environmental Affairs, Department of Environmental Protection, Department of Conservation and Recreation, and other agencies. She has also served on the Shirley Conservation Commission since 1991, and on other local committees and Devens redevelopment planning committees. Ms. Ricci is Past President and current VP for Advocacy on the Board of Directors of the Massachusetts Association of Conservation Commissions.